

### Remarks

Claims 1-13 and 15-18 are pending.

Applicants traverse the rejections of Claims 1-11, 13, 15, 17, and 18 and 12 and 16 under §103 over the Brode Patent.

Applicants wish to point out that the Office Action has not met its burden with regard to the Brode Patent. The Office Action correctly states that Brode teaches molecular weights of 10,000 to 500,000 g/mole and viscosities ranging from 5 to 5,000 centipoise (2% aqueous solution at 25°C). The Office Action also correctly states that "[i]t is well within the skill of technicians of the instant art to decrease the viscosity of personal care compositions to obtain a desired thickness of the product." However, **the Office Action fails to recognize that the molecular weights and viscosities of the presently claimed cellulose ethers are far greater than those of the Brode Patent**, which would be counterintuitive to the above-described conventional wisdom. For example, 4000 anhydroglucose units *alone* have a molecular weight of 648,000 g/mole (molar mass of the anhydroglucose unit = 162 g/mol). Likewise, the viscosities reported in Applicants' Table 2 for the claimed celluloses (HEC-1, HEC-2, and HEC-4) are at least three times greater, and on average, *more than ten times greater* than that taught by the Brode Patent. Thus, the claimed invention runs counter to the conventional wisdom expressed in the Examiner's reasoning, and its success should be considered surprising. Likewise, the rejections' motivation to modify the reference is respectfully submitted to be rebutted.

The Office Action admits that the claimed mole range of hydrophobic substituent is not taught by the Brode Patent. The Brode Patent states that that "...substitution level of the hydrophobic substituents is **greater than about 0.11**, preferably from about greater than about 0.11 to 0.25 and more preferably from

greater than about 0.11, e.g. about 0.12, to less than 0.16, e.g., about 0.15, gram moles of the hydrophobic substituent per gram mole of cellulose ether." col. 3, lines 28-33. This bottom of the Brode Patent's range is 137.5% greater than the top of the presently claimed range.

While the Office Action appears to consider the mole range not critical, it is stated in the Brode Patent that "Quite surprisingly, it has been found that the **combination of certain substitution levels** of hydrophobic substituents and cationic substituents can provide synergistic effects in saline compatibility and substantivity to mucous membranes." col. 1, lines 52-59; emphasis added. The Brode Patent teaches *double substituted* cationic cellulose ethers, thus, the reference would actually have to provide two motivations to be modified. The first motivation, to reduce the moles of hydrophobic substituent, is flatly not contemplated by the reference, as discussed above. Assuming for the sake of argument that a reduction in moles of hydrophobic substituent weren't contrary to the reference's teachings, the second *motivation required would be to reduce cationic substitution*, either a) incident to removal of the hydrophobic substituent (for those embodiments where it is cationically substituted), or b) to maintain the critical ratios of hydrophobic substituents to cationic substituents. *See* col. 4, lines 7-10. Either way, one skilled in the art would not be so motivated, as the reference teaches cationic modification of cellulose ethers is desirable because it imparts substantivity. *See* col. 1, lines 18-21. In summary, there is no motivation in the Brode Patent to reduce the amount of hydrophobic substituent.

Applicants traverse the rejections of Claims 3, 11, 16, and 18 and 12 under §103 over the Brode Patent in view of the Partain Patent. Applicants have discussed the Brode patent above. The Partain Patent is offered to show that MS can be 1.5 to 6. The Office Actions fails to explain how one would arrive at the claimed ranges

(and no discussion is made regarding the fact that Claim 3 is partially outside the range, claiming "1.0 to 3.0"). Applicants consider the rejection to be based on hindsight, particularly considering the lack of discussion regarding how the Partain Patent would motivate one skilled in the art to select the *claimed narrower ranges* from the reference's relatively broad MS range.

The Examiner is cordially invited to call the undersigned if it will facilitate prosecution.

Respectfully submitted,

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/Brian J. Hubbard/

Brian J. Hubbard  
Registration No. 45,873  
Phone: 989-636-6007

THE DOW CHEMICAL CO.  
P.O. Box 1967  
2030 Dow Center  
Midland, Michigan 48674  
(989) 636-6007

BJH/srl